Economic Aspects of Arms Trade Offsets

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Abstract: This paper addresses four sets of questions. First, are arms trade offsets part of normal trade relations or are they in some sense "extra-normal" and, if so, why would that matter? Second, why are arms trade offsets agreed to? There are two aspects to this question: (a) what economic theory would explain offsets? and (b) what are the rationales of buyer and seller when they agree to offsets? Third, are offsets economically efficient? Is social welfare maximized? What is the benefit, net of cost, for whom? In a word, what is the empirical evidence? And fourth, what, if anything, should be done about arms trade offsets?

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Introduction

The literature on arms trade offsets (and offsets generally) is cluttered with a babel of terms: direct and indirect offsets; commercial and industrial countertrade; simple and multiple barter; bilateral government trade and bilateral government framework agreements; countertrade; compensatory arrangements; clearing arrangements; economic cooperation agreements; coproduction; licensed production; subcontractor production; overseas investment; buy-backs; technology transfer; and switch trade.[1] Authors arrange these terms into a plausible order and proceed from there. The major themes they then address are captured in the following three sets of questions:

1. Are arms trade offsets part of normal trade relations or are they in some sense "extra-normal" and, if so, why would that matter?
2. Why are arms trade offsets agreed to? There are two aspects to this question: (a) what economic theory would explain offsets? and (b) what are the rationales of buyer and seller when they agree to offsets?
3. Are arms trade offset agreements economically efficient? Is social welfare maximized? What is the benefit, net of cost, for whom? In a word, what is the empirical evidence?

There is, perhaps, a fourth question:

4. What, if anything, should be done about arms trade offsets?

Before addressing each of these questions in turn, and addressing what exactly "offsets" are, note that countertrade is a vast, pervasive business practice, involving tens of thousands of people, reaching far beyond the market for military-related items, and is variously "estimated" at ranging from anywhere between five percent and thirty percent of world trade.[2] There are plenty of countertrade conferences, and written items number in the thousands, including those produced by academic specialists in international business, marketing, and economics (e.g., Hammond, 1990; Korth, 1987; Liesch, 1991; Martin, 1996). Specialized trade publications, e.g., *Countertrade Outlook* and *BarterNews* (www.barternews.com) are produced, publications such as *Aviation Week and Space Technology* and *Jane's Defense Weekly* take a natural interest in the subject matter, academic journals such as *Defence and Peace Economics* frequently carry articles on the offset topic, and there are a large number

of companies specializing in facilitating countertrade as lawyers, financiers, and brokers, in addition to the offset and countertrade offices housed within many of the affected corporations and government bureaus. In 1995/96, US taxpayers alone shouldered the pay of some 6,500 federal government employees in connection with US arms exports (Hartung, 1996, p. 12).

There exists an American Countertrade Association (www.countertrade.org), whose seven member executive committee includes high-level employees of Motorola, GE, and Boeing, and a Defense Industry Offset Association (DIOA) consisting, in 1998, of 65 member companies, representing nearly 100 percent of the US military-aerospace prime contractors. ACA and DIOA hold joint biannual conferences (1998, 2000, 2002), the last one 22-25 September 2002 in Tucson, Arizona. In addition, a cursory Internet search finds an International Reciprocal Trade Association, a National Association of Trade Exchanges, a Corporate Barter Council and, for deals gone bad, an offset Investment Recovery Association.

In the US one finds steady government interest in the issue, especially with regard to arms trade offsets, culminating in the formation, in 1999, of a Presidential Commission on Offsets in International Trade (www.offsets.brtrc.net).[3] Prior to that, the US Congress has taken sporadic interest in offsets, resulting *inter alia* in a number of requests to the US General Accounting Office (GAO) to report on various aspects of arms trade offsets in particular (see bibliography). Congress also mandates an annual arms trade offsets report, furnished by the Department of Commerce's Bureau of Industry and Security.[4]

Furthermore, the US National Research Council's Board of Science, Technology, and Economic Policy has produced two substantial conferences and reports (Wessner and Wolff, 1997; and Wessner, 1999), the Federation of American Scientists (www.fas.org) has an ongoing active interest in the issue inasmuch as it impinges on international arms sales, and so do numerous other interested and disinterested parties (see bibliography), including of course the foreign policy and military sectors. For instance, the US Department of State publishes *Defense Trade News*, and the US Department of Defense sponsors a quarterly journal published by the Defense Institute of Security Management Assistance (*The DISAM Journal*; http://disam.osd.mil/Journal.htm) which frequently publishes on arms trade offsets.

Are arms trade offsets part of normal trade relations?

The introductory remarks would seem to answer my first question – are arms trade

offsets part of normal trade relations? – in the affirmative. Certainly, such offsets are common. But are they "normal"? Indeed, from an economist's point of view, what exactly is "normal"? And what exactly are offsets? Let us inspect some examples of prevailing definitions.

1. "Offsets, coproduction, barter, and countertrade are compensatory trade agreements – agreements that incorporate some method of reducing the amount of foreign exchange needed to buy a military item or some means of creating revenue to help pay for it" (Neuman, 1985, p. 183).

2. "... an offset is a contract imposing performance conditions on the seller of a good or service so that the purchasing government can recoup, or offset, some of its investment. In some way, reciprocity beyond that associated with normal market exchange of goods and services is involved" (Udis and Maskus, 1991, p. 152).

3. "... an offset occurs when the supplier places work to an agreed value with firms in the buying country, over and above what it would have bought in the absence of the offset" (Martin and Hartley, 1995, p. 125) and offsets "... are usually designed to achieve a relocation of economic activity from the country of the equipment supplier to the purchasing nation" (p. 127).

These definitions can be read, as many authors do, to hold in common some degree of *coercion*. In contrast, in an important (but somewhat overlooked) article Peter Hall and Stefan Markowski (1994) argue that no seller can in fact be coerced to sell. I may lose a sale to a competitor, but you cannot coerce me to sell to you. The distinction between coerced and voluntary trade is important because in the former case, coerced trade leads to trade diversion and therefore to welfare losses, whereas in the latter case offsets are viewed as part of the negotiation over a complex package of goods and services which include military and non-military items and may well be welfare enhancing, as all voluntary trade is (at least in pure international trade theory). If for instance corporation A offers to sell 50 fighter aircraft at three billion dollars to the government of X (the "primary contract"), but then on account of competition from corporation B ends up offering a "compensating offset" purchase of $3 billion worth of agricultural products from X, why indeed should the prospective buyer be prevented from extracting economic rent from among the competing would-be sellers?

Consequently, Hall and Markowski offer this definition:

4. "Offsets are simply goods and services which form elements of complex voluntary transactions negotiated between governments as purchasers and foreign suppliers ... they are those goods and services on which a government chooses to place the label 'offsets' ... " (Hall and Markowski, 1994, p. 179).

The jab – that offsets are "those goods and services on which a government chooses to place the label 'offsets'" – is correct in that there is no logical difference between a $3 billion primary aircraft contract with a compensating agricultural offset valued at $3 billion and a $3 billion primary agricultural contract with a compensating aircraft offset valued at $3 billion. That which we call the "primary contract" and that which we call the "compensating offset" is arbitrary and therefore interchangeable. "All that can really be said is that a joint purchase of two different elements is being made" (Hall and Markowski, 1994, p. 178). A big buyer demands respect. Wal-Mart purchases a million items from thousands of suppliers, but it also purchases changes in its suppliers' operations. It purchases not only stationary and toys, but also supply-chain management. It purchases multiple products in a complex deal.

If we agree with this conceptualization of offsets as normal trade, then we might as well push it to its logical extremes. At one extreme, a weapon system's R&D, testing, and production take place entirely in the US and it is then transferred for monetary compensation elsewhere. At the other extreme, only the R&D is conducted in the US and everything else is outsourced to the buying country. The offset here consists of licensed production. In that case, the US thinks, and you produce. The US sells military blueprint services. It sells, in a word, deadly ideas; deadly ideas others wish to buy. Within the realm of pure economics, this is equivalent to trade in endangered species and child pornography. Economists are not immoral, but economic science is amoral: a trade is merely a trade, and what is important is the efficiency, not the morality, of the trade. Accordingly, the starting point for Hall and Markowski is whether arms trade offsets are voluntary or mandated. If mandated, if purchasing governments *insist* on a particular offset percentage, then Hall and Markowski agree that there will be trade diversion, trade distortion, and welfare-diminishing effects. But if voluntary, offsets could be welfare enhancing, at least in principle and even if viewed by some as immoral. Whether they are welfare enhancing would then depend on whether offsets are an efficient means of pursuing government's multiple objectives. I will return to this philosophical issue but for now I turn to economic theory, the offset players, and the empirical evidence.

The economic theory of arms trade offsets

The first part of the second question asks how economic theory explains the existence and persistence of voluntary or of mandatory countertrade and arms trade offsets. Important pieces include Murrell (1982), Banks (1985), Mirus and Yeung (1986a, 1986b, 1987), Hennart (1989), Udis and Maskus (1991), Caves and Marin (1992), Amann and Marin (1994), Hall and Markowski (1995), and Taylor (2000). A good review is available in Martin (1996, chapter 2). Briefly, one set of explanations revolves around international trade conditions. For example, since an overvalued currency inhibits exports (by making them too expensive on world markets) an arms trade offset agreement essentially amounts to a selective devaluation to "stimulate" exports in the chosen sector. Another example: countries facing difficulties borrowing on international financial markets to finance arms imports can circumvent this difficulty by engaging in non-monetary offset trade. Another explanation is that since barter, by its nature, is statistically less visible than monetary transactions, it is possible to engage in difficult-to-detect price discrimination to dump product on the world market that otherwise might be difficult to dispose of.

A further offering suggests that buy-back requirements – instances in which the arms seller agrees to invest in physical plant in the purchasing country and to buy-back a certain proportion of the output produced there – serve to hold the arms seller "hostage" to its own exported plant technology. In this case, uncertainty about the quality of the transferred technology is mitigated by sharing the risk with the seller. The seller is unlikely to dump outdated technology on the buyer if the seller has to buy-back part of the output produced. Another related and intriguing explanation comes from the observation that licensed technology generates a revenue stream only so long as the technology is current and competitive. That is, technology depreciates and arms sellers therefore possess an economic incentive to license technology to arms buyers in an offset deal. Yet another set of explanations revolves around search and transaction costs. Small-country arms buyers face steeper market penetration costs for non-defense items than established large-scale international conglomerates do. For example, in 2001 Boeing Corporation rang up sales revenue of US$58 billion. This would place it as number 45 on the world-GDP list and thereby exceed the GDP of many of its government clients.[5] Thus, an offset by which Boeing agrees to market products on behalf of its client may be a potent tool to penetrate foreign markets.

Furthermore, Hall and Markowski (1994) argue that the realities of international trade far exceed in complexity the simple textbook cash-for–goods ($3 for a

hamburger) markets. Many international trades are joint product trades, so complex that there may well exist economies-of-scope in drafting complex contracts involving a variety of countertrades. In essence, they argue, countries are not just buying arms; they are buying complex bundles of goods and services and wish to minimize associated transaction costs.[6] In a word, "in a world of imperfect markets, oligopoly rents, complex transactions and asymmetrical information, offsets might enhance the welfare of the purchaser" (Martin and Hartley, 1995, p. 127).

All of these theories can be read to rationalize arms trade offsets after the fact. They merely suggest that, in principle, offsets may entail net benefits when compared to the *status quo* and that the issue needs to be decided empirically. In my view, comparing the welfare effects of arms trade offsets to the *status quo* of international trade relations is pragmatic but intellectually dicey. For instance, it is surely inappropriate to deal with an overvalued exchange rate by means of arms trade offsets. It is surely inappropriate to deal with access to the heavily protected US and EU textile and agricultural markets with an arms trade offset. And it is surely inappropriate to assume that government makes optimal resource allocation decisions in the first place when deciding on certain levels of arms imports and associated offsets. Who is this "government"? Who makes decisions for whom? This leads to the next section, the players involved in offsets.

The arms trade offset players: who wants offsets, and who is opposed?

The second part of the second question asks who are the interested parties, the players, in the offset game, and what are the benefits they might derive or the costs they might bear? Here is one list.

< The exporting firm (i.e., its management and shareholders). The firm wishes to maximize profits. If deals without offsets maximize profits, those deals will be agreed to. If deals with offsets maximize profits, they will be agreed to. One constant arms producer refrain is that without offsets, sales will be lost to competitors who do offer offsets. It is a buyers' market; offsets are a condition of staying in the market. For general commercial products that may be true; but for military items – especially major weapon systems – it is a disingenuous argument. If the US government decided to restrict international arms sales, Lockheed Martin and Boeing would not go out of business. There will simply be *less* business, not no business, possibly leading to higher prices for purely domestic

procurement (but I will show later that this is unlikely, at least for the case of the US). Let us be clear: arms trade offsets are a condition of business only inasmuch as governments jointly permit the practice.

< The exporting firm's employees, and its union(s), if any, and the communities in which the workers live. Employees, especially unionized ones, can always be counted on to oppose competition in the output market. If there were no competition, they themselves would hold effective monopoly power, as the seller of labor services, and thereby possess the ability to extract rent from their employer. Accordingly, the US record is unambiguous: labor unions and their spokespersons always oppose arms trade offsets, especially in the form of coproduction and licensed production, on the argument that jobs would be shifted abroad. Union representatives routinely call for greater government regulation, not of arms trade, but of *competitive* arms trade. The communities in which employers and employees live potentially lose tax revenue and are opposed to direct offsets also.

< The exporting firm's subcontractors, and their workers and communities. In many instances, arms manufacturers structure offsets such that component production undertaken by subcontractors is outsourced to the buying country. In this case, the prime contractor and its employees are held harmless (or even gain), but the employers, employees, and communities of the subcontractors will be opposed.

< The exporting country's non-military firms. In a famous case that continues to traverse the literature, Northrop Corporation sold 64 F-18 aircraft to Finland. Part of the deal involved selling Finnish paper-making machinery in the US: an offset. Valmet, a Finnish company, offered such a machine to International Paper Company in the US in direct competition with a US-based firm, Beloit Corporation of Wisconsin, a subsidiary of Harnishfeger Industries. Beloit did win the contract but barely broke even on it. They had to give up profits on account of the Finnish competition. The case inspired the US Senator Russell Feingold (D-WI) to sponsor an amendment to the US Arms Export Control Act of 1994, prohibiting "third party incentive payments to secure offset credits."[7] Undoubtedly, offsets can hurt non-military firms. But what Senator Feingold, and others, failed to observe is that the profits the Wisconsin firm lost are the profits International Paper won. The net effect was zero!

< The government of the exporting firm's country. If arms trade offsets assist manufacturers of military goods to stay in business and maintain a certain level of employment and if, simultaneously, subcontractors and non-military business lose

employment on account of direct and indirect offsets, the government – the presumed impartial arbiter of all things economic – is in a bind. Technically speaking, it would need to consider the net benefits to the country. But the evidence that it does so is thin, in part because the possible effects of offsets ricocheting around the economy like a pinball, as in the Feingold example. Indeed, even if Beloit had lost the sale altogether to the Finns, it would still be true that the loss to one US company equals the gain to another.

Now, it is said – and here I pick up an earlier theme – that arms exports, by increasing the production run, lower the average cost of weapon systems and thereby the taxpayers' economic burden. True, in theory: if fixed costs equal $1,000 and incremental per-unit cost equals $100, then a 10-unit production run costs $1,000 + (10 x $100) = $2,000 or $200 per unit. A 20-unit production run would cost $1,000 + (20 x $100) = $3,000 or $150 per unit. Thus, for the 10-unit domestic procurement ordered in its behalf by the government the taxpayer pays only $1,500 instead of $2,000. In practice, however, it is little appreciated that a very large chunk of US arms exports is in fact US taxpayer subsidized. In FY 1995/96, US taxpayer subsidies of US arms exports amounted to nearly $8 billion (Hartung, 1996, p. 33). This equaled about two-thirds of the total $12 billion US arms exports that year. In my example, the US taxpayer pays $1,500 for the ten units for its own use, but also pays for two-thirds of the other, exported, ten units. That is, roughly, 7 x $150 = $1,050, for a total taxpayer bill of $2,550, or about 25 percent more than the smaller 10-unit production run at higher average cost (i.e., $2,550 vs. $2,000). The $8 billion arms export subsidy is large enough for each of 160,000 arms export workers to take a permanent, taxpayer-financed vacation at $50,000 a year. On the face of it, US arms exports *per se* are a bad deal for the US.

< The importing country's government and people. For the arms importing country, many benefits are claimed for arms trade offsets. Preservation of foreign exchange, employment creation, and technology transfers are among those most often mentioned. I already suggested that these claims may not hold up to factual scrutiny and refer to a later section of this paper for more detail.

< The importing country's firms (and their managers, shareholders, employees, unions, and communities) receiving direct or indirect offset contracts. These would gain, inasmuch as their respective counterparts in the arms-exporting country lose. Component production, coproduction, or licensed production obviously create benefits, narrowly construed. The question is at whose cost these benefits are

purchased, and what portion of the cost is borne by foreigners and what is borne by the importing country? Suppose for instance that a $3 billion arms deal results in $3 billion worth of compensating offsets directed toward indigenous arms component production. That means that $3 billion worth of taxpayer revenue to purchase the arms has been directed, via the offset, to arms component production and therefore has not been directed into health, housing, and education. The presumption therefore is that the social rate of return on armament component production exceeds the social rate of return on health, housing, and education but this is rarely, if ever, considered or explicitly calculated (and I dare say that the comparison would not be favorable to the military sector, at least in the case of developing nations).

< The people of various third-party countries who may be affected by arms trade offsets. If a $3 billion dollar offset requires me to undertake offset investments in country A, I obviously will not invest wherever else I might have invested, such as in country B. Third-parties will lose. Thus many authors argue that by encouraging bilateralism, mandatory offsets undermine international free-trade agreements. Indeed, for this reason the WTO Agreement on Government Procurement forbids offsets in government procurement although exceptions are granted to developing countries and, in article 23, further exceptions are granted on account of reasons pertaining to national security and public health. The agreement, moreover, is "plurilateral," meaning that not all WTO members have acceded to, and are therefore not bound by, its provisions (see www.wto.org).

I now turn to an evaluation of arms trade offset efficiency.

Are arms trade offsets economically efficient?

My third question asks about the evidence. The evidence is weak (and weak evidence should not be taken to support the case for offsets). Anecdotes abound, but case studies are few, and none are comprehensive in the sense of an economic audit that would assess all costs and all benefits to all people. Consider the following points. First, there is evidence that the US loses some military jobs on account of arms trade offset agreements with highly industrialized countries such as the Netherlands and Switzerland (Dirksen, 1998; Markowski, 1998). The Swiss and the Dutch nonetheless exercise careful control over the specification of arms trade offset agreements to ensure the precise direction into which offset-resources are steered. They almost never

are aimed at increasing indigenous military production capacity. Contrast this to the case of Spain, which had to abandon dreams of an integrated, comprehensive, indigenous arms industry to be generated via arms trade offsets (Molas-Gallart, 1998). The evidence further suggests that offsets are tiered: developed countries (such as the aforementioned Switzerland and the Netherlands but also the UK and Germany) are able to demand and usefully link offsets to their own military industries. In contrast, NICs demand and integrate offsets more into non-military industries, and LDCs on the whole integrate into non-military industries (GAO, 1996; also see Matthews, 2002, p. 197).

Second, after fifty years of substantial offset trade, and after the arms trade and offset hubris of the 1980s, why would – the odd exception notwithstanding – this general observation, that DCs tend to negotiate direct arms trade offsets and LDCs tend to negotiate indirect offsets, obtain? An answer, possibly the answer, is found in Brauer (1991, 2000). He empirically found an almost one-to-one correspondence between a country's potential to produce arms and its actual arms production. It is not actual arms production that creates the potential, but the potential that permits actual arms production. A country's arms production potential depends on the state of its human and physical capital. What the limited empirical evidence of the offsets literature suggests is that it ties in to Brauer's findings. As a group, developing nations do not posses the requisite capital, neither to engage in arms production nor arms coproduction, and that technology transfer and training do not transfer this capital in a self-sustaining manner. These capabilities apparently cannot be imported; they need to be grown indigenously.[8] Why won't the vaunted technology transfer be self-sustainable? Because the transferring country does not simply stand still while its "beautiful princess" (Williamson, 1983) is shipped abroad and effective competition is created. Instead, the exporting country will further develop its technological prowess, once more leaving the receiving country behind.[9]

Third, even indirect (non-military industry) offsets do not necessarily benefit the importing country. To return to a promise made earlier, consider the argument that arms trade offsets conserve scarce foreign-currency reserves. A simple example shows why this argument is incorrect. If I sell $1 worth of South African mangoes to the US, my US dollar reserves increase by $1. If I buy $5 worth of American apple pie, my US dollar reserves fall by $5. The net foreign-exchange cost to me is $4. Now suppose that there is an offset deal by which I pay the Americans $4, instead of $5, for their apple pie but require them to sell the mangoes on my behalf in the US market. The Americans get $4 directly and another $1 from the mangoes I ship to them to sell.

Thus, they ultimately get their $5 (although at extra cost since they are not in the mango business which they will need to learn). To me, my net foreign-exchange cost is still $4, namely the $4 I paid for the apple pie and the mangoes I shipped but did not sell. More formally, an arms trade offset "operation allows a country to import without having to spend foreign exchange but does not allow it to obtain any from the world market either" (Miramon, 1985, p. 27). Thus, indirect offsets are an attempt to shove non-competitive product onto the world market and thereby betrays the underlying economic inefficiency.

Fourth, suppose the receiving country argues that an offset does not displace trade but generates genuinely new, additional trade. It can be shown that this is wrong, too. Consider this example: suppose South Africa agrees to purchase military items from the EU to the value of R30 billion with a 100 percent offset requirement. The EU contractors agree to find someone willing and able to import R30 billion of South African agricultural products (fruit, fruit juice, wine). From the EUs point of view this is a trade displacement, say from Chilean wine and fruit suppliers to South African suppliers. In another year, however, suppose that Chile signs an offset contract of equivalent value, requiring the EU to purchase Chilean wine and fruit. Again, this must result in trade displacement, this time perhaps against the continuation of the South Africa wine and fruit exports to the EU. For offsets to carry a genuine economic impact, world demand for the underlying products must be increased. But world demand for commercial product is hurt, not helped, by extra military spending. Offsets do not offer additional trade: they merely displace it and probably destroy some of it. In addition, Miramon argues that it is "hardly to the advantage of the developing countries to hand over the responsibility for marketing their ... goods to foreign trading partners ... for whom this is a secondary activity" (1985, p. 27).

Fifth, what about offsetting physical investment in the receiving country? I mentioned previously that technology transfer offsets provide an opportunity to dispose of technology that is on the verge of being outdated. Offset receiving countries recognize this and can partially protect themselves if they negotiate buy-back deals (which obligates the technology exporting country to buy-back product made with the transferred technology). Still, an outdated technology combined with low-cost labor might make a buy-back deal attractive to the offset offering firm. Alternatively, even if I buy back competitively made product, at some point in time the offset agreement ends, and unless the receiving country has the ability to sustain the momentum, it will fall behind again (which is the argument implicit in Brauer 1991, 2000). Another line of critique would ask how those unfamiliar with the transferred technology can

properly evaluate what they receive? Or perhaps the US does transfer up-to-date technology but counts on being able to consistently outpace its own transferred technology (see Sperling, Louscher, and Salomone, 1995, p. 296).[10] To those who would sing the praises of offset-related technology transfer, it should at least give pause that the US technology lead is widening, not narrowing.

Sixth, it is at times demonstrated that the offset granting exporting firm sometimes benefits by locating competent subcontractors in the offset receiving country. For example, offset consultants Redlich and Miscavage conducted a meeting that brought together various divisions of a major US prime contractor with potential Israeli business partners. The consultants concluded that although "the seminar was obviously connected to the client's offset interests in Israel, it was conducted with the interest of finding business opportunities that the company would want to pursue regardless of any offset credit they might receive" (1996, p. 403). From an economic point of view, what the prime contractor should have done anyway as part of its due diligence obligation toward shareholders cannot be credited as benefits due to offsets. Likewise, any Israeli business thus generated cannot be credited to the offset deal either since, again, it is business that should have taken place anyway if they had submitted to due diligence in the market place as well.

What, if anything, should be done about arms trade offsets?

My fourth question asks what, if anything, should be done about arms trade offsets. I make a single general point, in three parts. First, if the underlying issue is economic development and growth, the developed countries would do best simply to open up protected markets (see also Miramon, 1985). Legions of people are opposed to what is nebulously referred to as "globalization," but in my view the greatest scandal by far is that a few handfuls of EU and US farmers are subsidized to the tune of hundreds of billions of dollars a year, sheltered within "non-globalized," protected home markets, when millions of peasants around the globe could substantially benefit from an open world agricultural market that would spark a production and export boom in the poor countries. As usual, the problem is not the presence but the absence of free, private, competitive markets. If the issue is economic development, the developing countries should press their counterparts in the West much harder on this issue (instead of on arms trade offsets).

Second, I believe that each country needs an *arms trade offset audit team* whose task it would be to measure the full economic cost of each proposed deal. This

is based on the notion that where public funds are expended, costs and benefits should be publicly accounted for. Just as private companies need to account to their shareholders and have their accounts audited and certified to fairly represent the company's affairs, so public accounts likewise need auditing. The offset audit team should certify that the full economic costs and benefits have been accounted and publish the details for public inspection. The public-at-large can then decide whether the losses or profits are worth the original objective. There is no need to (or danger of) revealing military and trade secrets. After all, what type of equipment a/o services are to be imported is widely known and reported in the trade press. But especially in countries where external security threats are minuscule and where it can reasonably be argued that there are severe non-military related public needs, such as in the areas of education, housing, and heath, elected governments owe it to their constituents to weigh the full economic cost and benefit with special care.[11]

Third, economics is about the material and immaterial well-being of all people.[12] By training, economists cannot but look with great unease at analyses that are limited to one or the other interest group (labor unions, employers, one country). Economists are global public servants. An economic valuation of arms trade offsets must therefore ultimately ask what the contract contributes to the lives of the people that finance it. And it must ask this question not only with regard to the flow-back of funds (the offset part of the deal) but also, and especially, with regard to the out-flow of funds – the arms deal itself. And so, to pick up the final strand left from the earlier discussion, let me squarely question the notion that developing countries need to import major weapon systems in the first place. The proportion of violent conflict within and among developing nations in which major weapon systems played an important role is small. We know that most wars are small-arms wars and that most killings occur on account of dismissively labeled small arms. We must therefore question that imports of major weapon platforms and weapon systems enhance the security status of the importer. We cannot simply take the stance, as Hall and Markowski do, that once "the objectives of defence procurement have been agreed," the only question is if "an offset requirement [is] an efficient means of pursuing them" (1994, p. 176). Public choice theory teaches us that there can be no simple presumption that the objectives of defense procurement have been agreed nor, indeed, that the objectives of defense itself have been agreed, and yet public funds are expended.[13] My call for offset audits would go a long way to ask and answer exactly what sort of security purchases a country really wishes to commit itself to. It may yet find that there are plenty of feasible, viable alternatives to imports of major weapon platforms and systems.

And from the exporter's side, the ultimate question also is not in terms of pure economics, but in terms of political economy, normative even: should arms and arms technology be transferred? As Hartung points out, the US faced its own weapons "the last five times the US has sent significant numbers of troops into combat" (1996, p. 3). This echoes Ann Markusen's statement (a member of the presidential offset commission) that the commission should make "the national security issue a central feature of its work and conduct hearings in which experts on arms trade proliferation and the contribution of offsets thereto are asked to testify" (Markusen, 2000).

Notes

1. This particular list is taken, mostly, from Neuman, 1975, tables 1 and 2. She strives to bring some conceptual order to these terms. For similar efforts, see e.g., Korth, 1987, chapter 1 and Martin, 1996, chapter 2.

2. Governments and international organizations do not track the value of countertrade separately. All "estimates" are more or less informed guesses, and it is by no means clear how they are arrived at.

3. The Commission was supposed to issue a final report in October 2001, but failed to meet to conclude its work (personal communication from Commission staff, 14 August 2002).

4. Until April 2002, this was known as the Bureau of Export Administration (BXA; see www.bxa.doc.gov/press/Publications/bxachap2.pdf for an example).

5. Boeing was ranked by *Fortune* magazine as #16 in its well-known Fortune-100 list (www.fortune.com ; accessed 16 August 2002) and refers to year 2001 revenue. The country GDP is from the World Bank (www.worldbank.org ; accessed 16 August 2002) and refers to the year 2000 GDP. Company sales volume and country GDP are not of course directly comparable (one is revenue, the other is value-added) but does suggest an order of magnitude. On this measure, Wal-Mart's $220 billion sales rank #20 ahead of Turkey's $199 billion GDP, and are twice nearly twice South Africa's $125 billion GDP.

6. On the transaction cost approach, see especially Taylor's (2000) as yet unpublished paper.

7. Later, an amendment of the Security Assistance Act of 1999 established the aforementioned presidential offsets commission. See Sen. Feingold's statement before the US Presidential Commission on Offsets in International Trade (2001).

8. This, apparently, is now recognized in South Africa as well (see Dunne, 2003).

9. Again, there are of course individual instances of effective competition being created by transferred technology. But individual instances do not appear to have accumulated to systemic change. And, again, the economic fact of the matter is that if technology transfer leads to more efficient component production, that should have been done in any case, even in the absence of offsets.

10. This is worth quoting: "The supplier nation can follow one of three strategies: seek to suppress the rate of technological diffusion; seek to ensure the development of technological innovation at a constant rate outrunning the rate of diffusion or imitation; or seek to control innovations."

11. See Glewwe (2002) for a review article on the returns to education in developing countries.

12. See Frey and Stutzer (2002) for a review article on happiness.

13. As so often when it comes to military expenditure or military affairs, I find that governments are unduly impressed by those who would ask it for information. When government expends public funds, it ought to welcome – as a matter of routine – opportunities to have its actions examined and audited, especially by disinterested professionals.

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